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(54) Title: T1R HETERO-OLIGOMERIC TASTE RECEPTORS AND CELL LINES THAT EXPRESS SAID RECEPTORS AND USE THEREOF FOR IDENTIFICATION OF TASTE COMPOUNDS

(57) Abstract: The present invention relates to the discovery that the T1R receptors assemble to form functional taste receptors. Particularly, it has been discovered that co-expression of T1R1 and T1R3 results in a taste receptor that responds to umami taste stimuli, including monosodium glutamate. Also, it has been discovered that co-expression of the T1R2 and T1R3 receptors results in a taste receptor that responds to sweet taste stimuli including naturally occurring and artificial sweeteners. Also the present invention relates to the use of hetero-oligomeric taste receptors comprising T1R1/T1R3 and T1R2/T1R3 in assays to identify compounds that respectively respond to umami taste stimuli and sweet taste stimuli. Further, the invention relates to the constitutive of cell lines that stably or transiently co-express a combination of T1R1 and T1R3; or T1R2 and T1R3; under constitutive or inducible conditions. The use of these cells lines in cell-based assays to identify umami and sweet taste modulatory compounds is also provided, particularly high throughput screening assays that detect receptor activity by use of fluorometric imaging. Finally, the invention relates to the discovery that some compounds, e.g., lactisole, inhibit both the activities of human T1R2/T1R3 and T1R1/T1R3 receptors, and accordingly the sweet and umami taste, suggesting that these receptors may be the only sweet and umami receptors.

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A. CLASSIFICATION OF SUBJECT MATTER

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B. FIELDS SEARCHED


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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
(X) Y	US 6,383,778 B1 (ZUKER et al.) 07 May 2002 (07.05.2002), column 1, line 45, column 4, line 61, column 5, lines 59-60, column 9, lines 19-23, 25-30, 51-67, column 10, lines 15-20, column 12, lines 43-57, column 13, lines 12-58, column 18, lines 25-30, column 33, lines 14-25, column 34, lines 30-67.	1-77,85-144,146-148,151-167 ----- 78-84, 145, 149, 150 168-193
A  A	US 6,383,778 B1 (ZUKER et al.) 07 May 2002 (07.05.2002), entire document.	168-193
	MONTMAYUER et al. A candidate taste receptor gene near a sweet taste locus. Nat. Neurosci. May 2001, Vol. 4, No. 5, pages 492-498.	1-167 ----- 168-193

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